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Per our discussion, here is a proposed draft office action response for our telephone conversation to be scheduled for June 2, 2009, at 9:00 A.M.

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Application No.: 10/722,987  
Office Action Dated: March 24, 2009

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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:  
**Leonard Ciprian Mosescu**

Confirmation No.: 9026

Application No.: 10/722,987

Group Art Unit: 2162

Filing Date: November 26, 2003

Examiner: Giovanna B. Colan

For: **EFFICIENT STRING SEARCHES USING NUMERIC KEYPAD**

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

## REPLY PURSUANT TO 37 CFR § 1.116

In response to the Official Action dated March 24, 2009, reconsideration is respectfully requested in view of the amendments and/or remarks as indicated below:

- Amendments to the Specification begin on page \_\_\_\_\_ of this paper.
- Amendments to the Claims are reflected in the listing of the claims which begins on page 2 of this paper.
- Amendments to the Drawings begin on page \_\_\_\_\_ of this paper and include an attached replacement sheet.
- Remarks begin on page 8 of this paper.

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This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1. (Currently amended) A method for using a limited input keypad to search for data contained in an electronic device, the limited input keypad comprising a plurality of keys, each of which is an alphanumeric key that is identifiable by a unique number and a corresponding subset of an alphabet, the method comprising:

storing a plurality of text strings and a corresponding plurality of numeric strings, wherein each of the plurality of numeric strings is formed by matching each individual letter contained in a text string with a corresponding number located on the same alphanumeric key;

receiving a first portion of a query via activation of a first alphanumeric key by a user of the limited input keypad;

searching the stored plurality of numeric strings for identifying a first set of numeric string having strings, each of which has in a first position, a first number that corresponds to the unique number on the activated first alphanumeric key;

using the first set of numeric strings to identify a corresponding first set of text strings, the first set of text strings including a desired text string that is an object of the search;

displaying the first set of text strings comprising the desired text string;

receiving a second portion of the query via activation of a second alphanumeric key by the user of the limited input keypad;

performing a further search on the plurality of numeric strings for identifying a second set of numeric string having strings, each of which has in the first position, the first number that corresponds to the unique number on the activated first alphanumeric key, and in an adjacent position, a second number that corresponds to the unique number on the activated second alphanumeric key;

using the second set of numeric strings to identify a corresponding second set of text strings, wherein the second set of text strings a) constitutes a reduced set containing a fewer number of text strings than the first set of text strings, and b) includes the desired text string; and

displaying the second set of text strings comprising the desired text string.

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using the identified second numeric string to identify the corresponding text string associated with the identified second numeric string, and use the identified corresponding text string to provide to the user, data contained in the electronic device.

2-5. (Cancelled)

6. (Previously Presented) The method of claim 1, further comprising storing the plurality of text strings and the corresponding plurality of numeric strings as a table.

7. (Previously Presented) The method of claim 6, wherein the storing as a table comprises: storing each of the plurality of text strings in respective rows in a first column of the table; and

storing each of the corresponding plurality of numeric strings in corresponding respective rows in a second column of the table.

8-24. (Cancelled)

25. (Currently amended) A data searching system, comprising:  
a limited input keypad comprising a plurality of keys, each of which is an alphanumeric key identifiable by a unique number and a corresponding subset of an alphabet;

a storage device for storing a plurality of text strings and a corresponding plurality of numeric strings; wherein each of the plurality of numeric strings is formed by matching each individual letter contained in a text string with a corresponding number located on the same alphanumeric key;

a display device for displaying a search result comprising data associated with at least one of the plurality of text strings a desired text string; and

a processor responsive configured to perform a search on the stored plurality of numeric strings in response to a query that is initiated by activation of a first alphanumeric key followed by activation of a second alphanumeric key, by performing a search on the stored plurality of

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numeric strings, and providing and provide to the display, the a first search result, after detecting a first numeric string that comprising a first set of text strings that is identified by detecting a first set of numeric strings, each of which contains the unique number of the activated first alphanumeric key in a first position of the first numeric string, followed by providing to the display, a second search result comprising a second set of text strings that is identified by detecting a second set of numeric strings, each of which contains the unique number of the activated first alphanumeric key in the first position of the numeric string and the unique number of the second alphanumeric key in a second position of the numeric string, and wherein the second set of text strings a) constitutes a reduced set containing a fewer number of text strings than the first set of text strings, and b) includes the desired text string, and identifying therefrom, a corresponding text string corresponding to the first numeric string.

26-29. (Cancelled)

30. (Previously Presented) The system of claim 25, wherein the storage device comprises a table for storing a mapping between the plurality of text strings and the corresponding plurality of numeric strings.

31. (Previously Presented) The system of claim 30, wherein the table comprises:  
rows in a first column of the table for storing each of the plurality of text strings; and  
corresponding rows in a second column of the table for storing each of the plurality of numeric strings.

32-36. (Cancelled)

37. (Withdrawn – Currently amended) A method to search for data contained in an electronic device by recognizing a string of letters wherein each letter contained in the string of letters is inputtable into the electronic device via a limited input keypad, the limited input keypad

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comprising at least one alphanumeric key that combinedly represents a unique number and a corresponding subset of an alphabet, the method comprising:

populating a lookup table by mapping the string of letters to a string of numbers, the mapping comprising:

identifying depression of a first alphanumeric key on the keypad, wherein the first alphanumeric key is selected to correspond to a first letter in the string of letters;

storing a first number that is the same as the unique number associated with the depressed first alphanumeric key;

identifying depression of a second alphanumeric key on the keypad, wherein the second alphanumeric key is selected to correspond to a second letter in the string of letters; and

storing a second number that is the same as the unique number associated with the depressed second alphanumeric key, wherein the second number is stored along with the first number, and wherein the combination of the first and second numbers comprises the string of numbers that enables a subsequent number search for recognizing a subsequent entry of the string of letters via the limited input keypad, and locating thereon, data associated with the recognized string of letters.

38. (Withdrawn – Previously Presented) The method of claim 37, further comprising:  
completing the mapping by storing each of the numbers corresponding to each of the letters in the string of letters; and  
using the lookup table for recognizing a subsequent entry of the string of letters into the limited input keypad, the recognizing comprising:

identifying subsequent depression of the first alphanumeric key on the keypad;  
searching the lookup table to locate the first number associated with the first alphanumeric key;

identifying subsequent depression of the second alphanumeric key on the keypad;  
searching the lookup table to locate the second number associated with the second alphanumeric key; and

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- recognizing from the combination of first and second numbers, the combination of the first and second letters that comprise the string of letters.
39. (Withdrawn – Previously Presented) The method of claim 38, further comprising:  
displaying the combination of the first and second letters to indicate the presence of a potential match in the lookup table.
  40. (Withdrawn – Previously Presented) The method of claim 39, further comprising:  
displaying all letters in the string of letters upon recognizing an exact match in the string of numbers contained in the lookup table.
  41. (Withdrawn – Previously Presented) The method of claim 38, further comprising:  
populating the lookup table by mapping a plurality of additional letter strings to a corresponding plurality of additional number strings.
  42. (Withdrawn – Previously Presented) The method of claim 41, further comprising:  
displaying at least one letter from one of the additional letter strings as a potential match during the subsequent entry of the string of letter into the limited input keypad.
  43. (Withdrawn) The method of claim 41, further comprising:  
displaying duplicate matches that exist in the lookup table.
  44. (Cancelled)
  45. (Currently amended) The method of claim [[44]] 1, wherein the identified-second numeric desired text string is a name of a contact stored in the electronic device.
  46. (Previously Presented) The method of claim 45, wherein the data associated with the name of the contact comprises at least one of a) a phone number, and b) an address.

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47. (Previously Presented) The method of claim 6, wherein the plurality of text strings corresponds to names of a contact list stored in the electronic device, and the data associated with each of the names is stored together with the names in the table.
- 48-49. (Cancelled)
50. (Currently amended) The system of claim 48 25, wherein the identified second numeric desired text string is a name of a contact stored in the electronic device.
51. (Previously Presented) The system of claim 50, wherein the data associated with the name of the contact comprises at least one of a) a phone number, and b) an address.
52. (Previously Presented) The system of claim 51, wherein the plurality of text strings corresponds to names of a contact list stored in the electronic device, and the data associated with each of the names is stored together with the names in the table.
53. (New) The system of claim 25, wherein a first alphanumeric key of the plurality of keys corresponds to a number "2" and a subset "ABC" of the alphabet, and further wherein a second alphanumeric key of the plurality of keys corresponds to a number "3" and a subset "DEF" of the alphabet.

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## REMARKS

This is a full and timely response to the final Office Action mailed March 24, 2009. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

### Present Status of Patent Application

Claims 1, 6, 7, 25, 30, 31, 37-43, 45-47, and 50-53 are now pending in the present application. Of these pending claims, claims 1, 25, 45 and 50 are currently amended without introduction of new matter; claims 37-43 have been withdrawn as a result of a previous Office action; claims 2-5, 8-24, 26-29, 32-36, 44, 48 and 49 are canceled; claims 6, 7, 30, 31, 46, 47, 51 and 52 are previously presented claims; and claim 53 is a new claim being submitted without introduction of new matter. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

### Claim Rejections under 35 U.S.C. §102

#### Statement of the Rejection

*Claims 1, 6-7, 25, 30-31, and 37-47, and 50-52 are rejected under 35 U.S.C. 102(b) as being anticipated by Grover et al. (Grover hereinafter) (US 5,818,437).*

#### Response to the Rejection

Applicant respectfully draws attention to a minor typographical oversight in the statement of the rejection on page 2 of the Office action. The statement includes several claims (37-43) that are currently withdrawn, and also includes several claims (45-47 and 50-52) that have apparently not been rejected under 35 U.S.C. 102(b).

#### Claim 1

Applicant has opted to currently amend claim 1 in order to move forward prosecution in the case, and respectfully submits that the claim, at least as amended, is allowable over the cited art. The amended claim includes the displaying of a first set of text strings containing a desired text string, followed by displaying of a second set of text strings that also contains the desired

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text string. The second set of text strings is a reduced set containing a fewer number of text strings than the first set of text strings, thereby providing an efficient search result that further eliminates irrelevant text strings. These features have been described in various portions of original specification and illustrated accordingly. As a non-limiting example, attention is drawn to Applicant's Fig. 8, which shows an exemplary first set of text strings ("Steven" and "Sarah" in block 820) and an exemplary reduced second set of text strings ("Steven..." in block 895, where the text string "Sarah" has been eliminated).

In contrast to Applicant's approach, the cited art of Grover fails to show a reduction/narrowing of search results. To elaborate, attention is drawn to Grover's Fig. 10, which shows a search tag "6" resulting in a matching output "I"; followed by a second search tag combination ("65") that results in an expanded and different list of matching outputs ("he" and "i.e.,"); further followed by a third search tag combination ("654") that results in yet another list of different matching outputs ("her" and "hem"). As can be seen neither the first nor the second list of matching outputs include the desired search text (apparently "her" or "hem"), thereby leading to a handicap in the form of an unnecessary number of additional key strokes.

The handicap associated with Grover's approach may best be illustrated by using Grover's system of Fig. 10 for implementing an exemplary process in accordance with Applicant's claim 1 (assuming *arguendo* that Applicant's claim 1 may indeed be reasonably applied to Grover's system of Fig. 10).

Beginning with Grover's search tag "6" a search of Grover's memory (in accordance with Applicant's method) will result in a display of the following first set of text strings: "I, I'm, if, he, i.e., is, her, and hem." When Grover's next search tag ("65") is applied, the first set of text strings will then be reduced to a second set of text strings: "he, i.e., her, and hem". When Grover's next search tag ("654") is applied, the second set of text strings will then be further reduced to a third set of text strings: "her, hem." It can be understood that Applicant's approach allows a user to select the desired text "her" or "hem" as a result of the very first key stroke ("6"), in contrast to Grover's approach which requires three key strokes ("654") before obtaining the desired result. One of ordinary skill in the art will recognize that such a

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reduction/optimization of key strokes provides a distinct and desirable advantage over Grover, thereby making Applicant's claim 1 clearly allowable over the cited art.

(Incidentally, on a different subject, it may be pertinent to point out that Grover adopts an unconventional mapping of letters to numbers in his keys, which he describes in his col. 1, lines 59-64, as follows: "*An important aspect of the invention which allows high efficiency is that the letters are assigned to the keys in a non-sequential order. That is, instead of assigning the letters from a to z in sequential order, the letters are grouped onto keys in a way which reduces the frequency of ambiguities for the words of the English language.*" One of ordinary skill in the art will recognize that this unconventional implementation by Grover presents its own sets of handicaps when using "conventional" devices. Applicant submits new claim 53 to reinforce the advantage provided by Applicant's method vis-à-vis using pre-existing keypads.)

In summary, for at least the reasons provided above, Applicant respectfully submits that amended claim 1 is allowable over Grover, and therefore requests withdrawal of the rejection under 35 U.S.C. 102 followed by allowance of the claim.

#### Claims 6 and 7

Applicant respectfully submits that independent claim 1 is allowable for at least the reasons cited above. Consequently, claims 6 and 7 that are dependent directly or indirectly on claim 1 are also allowable as a matter of law. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). For at least this reason, Applicant hereby requests withdrawal of the rejection followed by allowance of claims 6 and 7.

#### Claim 25

In contrast to claim 1, which is a method claim, Applicant's claim 25 is a system claim. Consequently, the scope of these two claims is distinct and different. However, certain remarks made above with reference to the rejection of claim 1 are equally pertinent to the rejection of claim 25 as well. In the interests of brevity, these remarks will not be repeated herein and Applicant respectfully submits that claim 25 is also allowable at least in currently amended form. Consequently, Applicant requests withdrawal of the rejection followed by allowance of the claim.

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**Claims 30 and 31**

Applicant respectfully submits that independent claim 25 is allowable for at least the reasons cited above. Consequently, claims 30 and 31 that are dependent directly or indirectly on claim 25 are also allowable as a matter of law. For at least this reason, Applicant hereby requests withdrawal of the rejection followed by allowance of claims 30 and 31.

**Claim 37**

Applicant respectfully traverses the rejection of this claim because the cited art of Grover fails to disclose each element of the claim as required for carrying out a proper rejection of the claim under 35 U.S.C. 102. For example, on page 6 of the Office action it is alleged that Applicant's "*storing a first number that is the same as the unique number associated with the first alphanumeric key*" is anticipated by Grover's "*Fig. 10, table "Tag Content", and Col. 2, lines 35-39, 45-51, and 56-67, Col. 12, lines 43-49, Grover.*" Applicant respectfully points out that the cited portions of Grover (as well as remaining portions) fail to disclose that the storing of this number is carried out based on "*identifying depression of a first alphanumeric key on the keypad*" and "*identifying depression of a second alphanumeric key on the keypad*" as recited in the claim. One of ordinary skill in the art can recognize that Grover's memory (alleged "table") can be programmed in a variety of ways. Consequently, it is improper on the part of the Office action to jump to the conclusion that his memory has been programmed by identifying key depressions in the manner cited in Applicant's claim 37.

Therefore, for at least the reasons provided above, Applicant respectfully submits that the rejection of claim 37 under 35 U.S.C. 102 is improper and hereby requests withdrawal of the rejection followed by allowance of the claim.

**Claims 38-43**

Applicant respectfully submits that independent claim 37 is allowable for at least the reasons cited above. Consequently, claims 38-44 that are dependent directly or indirectly on claim 37 are also allowable as a matter of law. For at least this reason, Applicant hereby requests withdrawal of the rejection followed by allowance of claims 38-44.

**Claims 44, 48 and 49**

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Applicant has canceled claims 44, 48 and 49 and respectfully submits that the rejection of these claims has been rendered moot as a result of the cancellation.

**Claim Rejections under 35 U.S.C. §103**

**Statement of the Rejection**

*Claims 45-47, and 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grover et al. (Grover hereinafter) (US 5,818,437) in view of Griffin et al. (Griffin hereinafter)(US 7,227,536).*

**Response to the Rejection**

**Claims 45-47**

Applicant respectfully traverses the rejection of claims 45-47, specifically the reasons provided for modifying Grover in view of Griffin. However, in the interests of brevity, Applicant has opted not to delve into details for the traversal because claims 45-47 are dependent indirectly on claim 1, which is allowable of reasons provided above, thereby making claims 45-47 allowable as well. Consequently, for at least this reason, Applicant hereby requests withdrawal of the rejection followed by allowance of claims 45-47.

**Claims 50-52**

Applicant respectfully traverses the rejection of claims 50-52, specifically the reasons provided for modifying Grover in view of Griffin. However, in the interests of brevity, Applicant has opted not to delve into details for the traversal because claims 50-52 are dependent indirectly on claim 25, which is allowable of reasons provided above, thereby making claims 50-52 allowable as well. Consequently, for at least this reason, Applicant hereby requests withdrawal of the rejection followed by allowance of claims 50-52.

**Cited Art Made of Record**

The cited art made of record has been considered, but is not believed to affect the patentability of the presently pending claims.

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**CONCLUSION**

Applicant respectfully submits that pending claims 1, 6, 7, 25, 30, 31, 37-43, 45-47, and 50-53 are allowable. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned representative.

Date: x

Joseph F. Oriti  
Registration No. 47835

Woodcock Washburn LLP  
Cira Centre  
2929 Arch Street, 12th Floor  
Philadelphia, PA 19104-2891  
Telephone: (215) 568-3100  
Facsimile: (215) 568-3439